1.1200 1413

S/126/61/011/001/011/019
E193/E483

AUTHORS: Beresnev, B.I., Bulychev, D.K. and Rodionov, K.P.

TITLE: Specific Features of Extrusion of Metals at Elevated Temperatures With the Aid of Pressurized Fluids

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.1, pp.115-122

TEXT: The limits of application of the process in which deformation-resistant alloys are extruded with the aid of hydrostatic pressure are set at present by the maximum power rating of the high pressure generating equipment. While it is true that the extrusion pressure can be greatly reduced by increasing the temperature of the extruded metal, this expedient cannot be used until the effects of temperature on the fluid medium, used in the process under consideration, and on the parameters of the process are known. It was for this reason that the investigation described in the present paper was undertaken. A special extrusion press was constructed for this purpose in which pressures up to 10000 kg/cm^2 could be attained and in which provision was made for heating both the container and the metal to temperatures $\leqslant$ 400 °C. The liquid medium, delivered under pressure from a hydraulic

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BERESNEV, B.I.; IVKOV, V.P.

High-pressure hydraulic compressor for laboratories. Prib.i tekh. eksp. 6 no.5:162-165 S-O '61. (MIRA 14:10)

1. Institut fiziki metallov AN SSSR.
(Compressors)

69383

S/136/60/000/04/022/025
E193/E283

On Extrusion of Metals With the Aid of Liquid Under High Pressure

in the new method, friction is limited to minimum, one should expect more uniform deformation of the extruded metal, and this also has been confirmed by experimental results. It was found, in addition, that the mechanical properties of the material extruded by this method are considerably improved. Thus, for instance, aluminium extruded by the new method to $\phi = 0.9$, had UTS 1.7 higher than in the as-cast condition; This increase in strength was attained without significant reduction of ductility, the reduction of area of the extruded material being 0.62. In the course of the investigation reported in the present article, a press capable of extruding profile shapes by the new method has been constructed. It was concluded that the methcd described has great practical possibilities. There is 1 figure.

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On Extrusion of Metals With the Aid of Liquid Under High Pressure

so that it leaves the die at rates as high as several hundred m/sec. Consequently, the volume of extruded material can considerably exceed the capacity of the high pressure generator. In the new extrusion method there is no friction between the billet and the container walls and the friction between the metal and the die is considerably reduced; this cannot but reduce the magnitude of pressure necessary to extrude the metal. This has been confirmed experimentally. Thus, for instance, in the case of aluminium, extruded in an ordinary press to

$$\phi = \frac{F - f_o}{F} = 0.9$$

(ϕ - degree of deformation, F - cross-section area of the billet, f_o - cross-section area of the extruded rod), a pressure of 18 000 kg/cm^2 was necessary; a pressure of only 4500 kg/cm^2 was required in the new method. Some of the defects of material extruded by the standard method are associated with friction between the extruded metal and the walls of the container and the die; since

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On Extrusion of Metals With the Aid of Liquid Under High Pressure

optimum operating conditions. The first problem to be investigated was associated with the fact that not only the magnitude of pressure necessary to force the metal through the die, but also the quality of the extruded metal, are affected by the nature of the liquid employed. The viscosity of some liquids, subjected to high pressure, rapidly increases and a liquid that has been "solidified" in this manner can damage the extruded material; it is for this reason that only liquids whose viscosity is unaffected by high pressure can be used in this application. To lower the extrusion pressure, it is advisable to apply a thin layer of a lubricant on the extrusion billet. (Quite satisfactory results were obtained with water as the high-pressure liquid and hypoid oil as the lubricant). It was established that when high-pressure liquid is used in extrusion, it is necessary to distinguish between the initial and steady (static and dynamic extrusion) conditions. The transition from the former to the latter is accompanied by a sudden and large drop of the pressure required. The energy, stored in the source of high pressure, accelerates the extruded metal

69383

S/136/60/000/04/022/025
E193/E283

18.5100

AUTHORS: Beresnev, B. I., Vereshchagin, L. F., and Ryabinin, Yu. N

TITLE: On Extrusion of Metals With the Aid of Liquid Under High Pressure

PERIODICAL: Tsvetnyye metally, 1960, Nr 4, pp 84-85 (USSR)

ABSTRACT: The results of investigation on plastic flow of metals, subjected to high hydrostatic pressure, have indicated the possibility of modifying the present extrusion process by replacing the rigid ram with a liquid under high pressure. The principle of the classical extrusion process is illustrated in Fig 1a. Fig 1b shows the modified process; in this case the billet (2), placed in the container (1), is forced through the die aperture (3) by liquid supplied from the high-pressure generator. Of course, arrangements can be made for the metal emerging from the die aperture, not straight in the surrounding atmosphere, but into a vessel in which high hydrostatic pressure is maintained; this arrangement is illustrated in Fig 1v. These two variants of the new extrusion method were studied in the Institutes of Physics of High Pressures and Metal Physics of the AS USSR, with the view of establishing the

Card 1/4

Conditions of Flow and Change in the Mechanical Properties of Metals During Their Extrusion by High Pressure Liquid

S/170/60/003/012/004/015
B019/B056

friction. Further, a considerable decrease of extrusion pressure from 18,000 kg/cm^2 to 4,500 kg/cm^2 was observed, as well as an improvement of the tensile strength of from 10.9 to 18 kg/mm^2, and a considerably more uniform distribution of microhardness over the cross section of the material extruded by this method. The surface quality is also better than in the case of a conventional method. There are 4 figures, 2 tables, and 5 references: 4 Soviet and 1 German.

ASSOCIATION: Institut fiziki vysokikh davleniy, g. Moskva (Institute of the Physics of High Pressures, Moscow). Institut fiziki metallov AN SSSR, g. Sverdlovsk (Institute of the Physics of Metals, AS USSR, Sverdlovsk)

SUBMITTED: January 30, 1960

Card 2/5

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204800035-6

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S/170/60/003/012/004/015
B019/B056

1 1200

AUTHORS: Beresnev, B. I., Vereshchagin, L. F., Ryabinin, Yu. N.

TITLE: Conditions of Flow and Change in the Mechanical Properties of Metals During Their Extrusion by High Pressure Liquid

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 12, pp. 43-48

TEXT: Experiments are reported of carrying out metal extrusion directly by means of a high-pressure liquid, without using intermediate elements. The authors built a test device, by means of which experiments under pressures of up to 10,000 atm were carried out. The selection of the liquid plays an important part, and in Table 1 results obtained by previous experiments on commercial-grade aluminum of the type АД 1(AD1) (99.3% Al, 0.7% Fe+Si+Cu) are given. The extrusion pressures of a number of metals are given in Table 2. From experiments concerning the most favorable conditions obtainable it followed that the most favorable inlet angle for all metals investigated here is about 15° (45° in extrusion with conventional methods), which is much more favorable for conditions of

Card 1/

Some Problems of Large Plastic Deformations (Cont.) SOV/4750

High Pressures of the Academy of Sciences USSR) as part of a program for studying the physics of solids under high pressures. F.F. Voronov, V.A. Shapochkin, and Ye. V. Zubova collaborated with the authors in carrying out experiments at the instutute. The authors discuss the effect of hydrostatic pressures on the plasticity of metals, the flow of metals in extrusion by high-pressure liquid, the mechanical properties of metals extruded by this method, and the use of this method in the extrusion of fancy shapes and tubing. There are 52 references: 47 Soviet, 4 English, and 1 German.

TABLE OF CONTENTS:

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PHASE I BOOK EXPLOITATION SOV/4750

Beresnev, B.I., L.F. Vereshchagin, Yu.N. Ryabinin, and L.D. Livshits

Nekotoryye voprosy bol'shikh plasticheskikh deformatsiy metallov pri vysokikh davleniyakh (Some Problems of Large Plastic Deformations of Metals at High Pressures) Moscow, Izd-vo AN SSSR, 1960. 79 p. Errata slip inserted. 3,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki vysokikh davleniy.

Resp. Ed.: S.I. Ratner, Doctor of Technical Sciences; Ed. of Publishing House: K.P. Gurov; Tech. Ed.: L.A. Lebedeva.

PURPOSE: This booklet is intended for technical personnel engaged in the extrusion of metals.

COVERAGE: The booklet presents a summary and analysis of the results of experiments in the investigation of plastic deformation of metals under high pressures. These experiments were conducted during the last few years at the Institut fiziki vysokikh davleniy AN SSSR (Institute of the Physics of

Card 1/4

Method of Investigating the Effect of the Hydrostatic Pressure Upon the Mechanical Properties of Deformed Metals

SOV/32-25-6-30/53

vacuums occurs which causes a compression of the sample (as it is between the two vacuums) and a plastic flow takes place in the sample. A hydraulic compressor was used for this purpose (10000 atm) and aluminum AD 1 samples were investigated. With increasing compression pressure also the plasticity of aluminum increases (Fig 3, Diagram) which was found in an extension of the sample under normal pressure following the compression. There are 3 figures and 2 Soviet references.

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy Akademii nauk SSSR (Laboratory of Physics of Ultra-High Pressure of the Academy of Sciences, USSR)

Card 2/2

28 (5)

AUTHORS: Beresnev, B. I., Vereshchagin, L. F., Ryabinin, Yu. N. SOV/32-25-6-30/53

TITLE: Method of Investigating the Effect of the Hydrostatic Pressure Upon the Mechanical Properties of Deformed Metals (Metod izucheniya vliyaniya gidrostaticheskogo davleniya na mekhanicheskiye svoystva prodeformirovannykh metallov)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 736-737 (USSR)

ABSTRACT: The effect of pressure upon the other mechanical properties of metals which were exposed to an intensive plastic deformation under high pressure is of special interest. For these investigations a method was suggested in the present case which provides a compression of the metal under universal hydrostatic pressure. Compression takes place in a special device (Fig 2) into which the container for the high pressure is fitted (Fig 1). The latter is divided into two vacuums; the sample is inserted in such a manner that it forms sort of conical stopper between the two vacuums. The mode of operation consists in a slow pressure release of the liquid filled into the two vacuums under high pressure in the lower vacuum; thus a difference in pressure between the two

Card 1/2

Liquid Forms Metal

using liquid only a 4.5 ton pressure is required. The metal can be punched in a cold state, and its properties do not change. The liquid's film protects the surface of the metal from destruction and the die from abrasion. Contrary to the stamping method, any length may be given to the articles regardless of their shape. The high-pressure liquid is obtained by means of a hydrocompressor, designed at the Institute of High-Pressure Physics at the AS USSR and is already used in industry. The forming of metal occurs in a simply designed container. To prevent the pressure in the container at the beginning of the process from surpassing the pressure needed for the outflow of the metal, an intermediate apparatus - a receiver - in which the liquid, compressed up to high pressures, is accumulated between the container and hydrocompressor. The energy accumulated in the receiver, makes possible a high-speed process of up to some hundreds of meters per second. There are 3 diagrams.

Card 2/2

25(1) SOV/25-59-8-7/48

AUTHOR: Beresnev, B.I., Engineer

TITLE: Liquid Forms Metal

PERIODICAL: Nauka i zhizn', 1959, Nr 8, p 16 and p 1 of the centerfold (USSR)

ABSTRACT: The author describes a new method of shaping metals using liquid. This method is based on the replacement of the rigid punch by a liquid under high pressure (Figure II). The procedure was developed by the Institut fiziki vysokikh davleniy Akademii nauk SSSR (Institute of High-Pressure Physics at the Academy of Sciences of the USSR). Tests have shown that the new method has many advantages compared with the usual punch method (Figure I). The loss in energy for overcoming the effect of friction force is reduced; e.g. if for changing the form of aluminum material by a punch, a force of 18 tons per sq cm is needed, so on

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SOV/126-7-2-13/39

Change in the Mechanical Properties of Non-Ferrous Metals and Alloys in the Process of Extrusion by a High Pressure Liquid

high pressure increases their strength, whilst preserving their plasticity.

2. The mechanical properties obtained after cold deformation, which are evident in tensile testing, are identical for both extrusion methods.

3. The distribution of deformation along the cross section of a liquid-extruded rod is more uniform than that of a plunger-extruded one.

4. The shape of the instrument influences the distribution of deformation in the liquid-extrusion of metals. It has been found that there are optimum die angles for obtaining a uniform deformation along the cross section of a rod and the best surface properties of the metal.

There are 7 figures, 1 table and 9 Soviet references.

ASSOCIATION: Laboratoriya sverkhvysokikh davleniy AN SSSR (Laboratory for Super-Pressures, Ac.Sc. USSR)

SUBMITTED: February 14, 1958

Card 5/5

Change in the Mechanical Properties of Non-Ferrous Metals and Alloys in the Process of Extrusion by a High Pressure Liquid

hardness H_μ along the cross sections of Cu rods, liquid-extruded at various degrees of preliminary deformation through a die with an entry angle of 22° 30', is shown. (D - rod diameter, d - diameter of the cross section). 1 - annealed metal; 2 - liquid extrusion ϕ_{np} = 0.5; 3 - liquid extrusion ϕ_{np} = 0.624; 4 - liquid extrusion ϕ_{np} = 0.712. In Fig 6 the distribution of H_μ along the cross section of Cu rods extruded by two methods through a die with an entry angle of 22° 30' is shown:- 1 - extrusion by liquid ϕ_{np} = 0.5; 2 - extrusion by plunger ϕ_{np} = 0.5. In Fig 7 the distribution of H_μ along the cross section of Cu rods (d - diameter of cross section of liquid-extruded rods, ϕ_{np} = 0.5 const) extruded through dies with different angles:- 1 - α = 5°; 2 - α = 60°; 3 - α = 22° 30'; 4 - α = 40°; 5 - annealed metal. As a result of the above experiments, the authors have arrived at the following conclusions:

Card 4/5

1. Cold deformation of metals in liquid-extrusion under

Change in the Mechanical Properties of Non-Ferrous Metals and Alloys in the Process of Extrusion by a High Pressure Liquid

studied:- aluminium AD1 (0.25% Fe, 0.29% Si), copper M2 (99.76% Cu) and the alloy AMG (3.89% Mg, 0.36% Fe, 0.52% Si). The materials were annealed prior to deformation. The properties of the metals in their original condition are shown in a Table (p 248). The graphs of Figs 1, 2 and 3 show changes in mechanical properties of AD1, M2 and AMG specimens having undergone a preliminary deformation by high pressure liquid extrusion. In Fig 1 the change in σ_B for AD1, M2 and AMG with increase in the extent of preliminary deformation ϕ_{np} is shown. In Fig 2 the change in $\sigma_T^{0.2}$ for the above three alloys with increase in the extent of ϕ_{np} is shown. In Fig 3 the change of coefficient of reduction of area ϕ_k for the above alloys with increase in degree of ϕ_{np} is shown. Fig 4 is a photomicrograph of copper, deformed by liquid-extrusion under high pressure:- a - annealed Cu; b - $\phi_{np} = 0.5$; B - $\phi_{np} = 0.712$. In Fig 5 the distribution of micro-

Change in the Mechanical Properties of Non-Ferrous Metals and Alloys in the Process of Extrusion by a High Pressure Liquid

applied to the specimen was registered at various stages of testing with an accuracy of up to 0.7 kg. The elongation of the specimen was registered by pointers with an accuracy of up to 0.01 mm. The diameter of the specimen before and after fracture was measured by a micrometer with an accuracy of up to 0.005 mm. The elongation tests enabled the change in mechanical properties (σ_B - yield strength, $\sigma_{0.2}$ - yield point, ψ_k - reduction in area) on cold deformation to be established for specimens having undergone various degrees of preliminary deformation for the two methods of extrusion. Considerable attention was paid to the change in microstructure of extruded articles. Micro-sections were made of specimens which had been deformed to various degrees by the two extrusion methods, and microhardness tests were carried out in a PMT-3 machine (Ref 7). In order to avoid work hardening, the sections were electrolytically polished by a method suggested by Popilov et al. (Ref 6). The following metals were

25(1), 18(6), 18(7) SOV/126-7-2-13/39

AUTHORS: Beresnev, B. I., Vereshchagin, L. F. and Ryabinin, Yu.N.

TITLE: Change in the Mechanical Properties of Non-Ferrous Metals and Alloys in the Process of Extrusion by a High Pressure Liquid (Izmeneniye mekhanicheskikh svoystv tsvetnykh metallov i splavov pri vydavlivanii ikh zhidkost'yu vysokogo davleniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 2, pp 247-253 (USSR)

ABSTRACT: Metal was used for the investigation which had undergone various degrees of deformation by liquid-extrusion as well as by plunger extrusion. The method used for the extrusion of metals by liquid has been described by Beresnev et al. (Ref 5). In order to compare results, an instrument for extruding metals by a plunger was made. Specimens in the form of rods of definite length were made for tensile testing from the metal thus treated. Prior to testing the specimens were gripped in tong-like grips. The distance between the grips was kept at 10 d_o (d_o being the diameter of the specimen prior to testing and being 2-4 mm). Testing was carried out in a specially designed tensile testing machine at 4 mm/min. The force

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SOV/126-7-1-18/28

The Influence of Hydrostatic Pressure on the Change in Mechanical Properties of Aluminium After Strong Plastic Deformation

There are 5 figures, 1 table and 11 references, of which 9 are Soviet and 2 German.

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR (Laboratory of the Physics of Extremely High Pressures, Ac. Sc. USSR)

SUBMITTED: February 14, 1958

Card 4/4

The Influence of Hydrostatic Pressure on the Change in Mechanical Properties of Aluminium After Strong Plastic Deformation

usual properties, UTS, yield stress, relative elongation, final reduction in area and the coefficient of uniform reduction in area. In Figs.3, 4 and 5 the relationships between three characteristics of plasticity (final reduction in area, relative elongation and coefficient of uniform reduction in area) and extrusion pressure are shown. It was found that all these characteristics which determine the plasticity of aluminium increase with increase of pressure. As regards the influence of pressure on the strength of the metal, a few conclusions can be arrived at from a consideration of Fig.5. It is known that the physical strengthening of a metal is greatest on attaining a deformation which is equal to the coefficient of uniform reduction in area (see Ref.11). As can be seen from Fig.5, pressure causes this coefficient to increase. Hence an increase in strength of aluminium with increase in extrusion pressure at the same preliminary deformation can be expected.

materials increases sharply if they are deformed at high hydrostatic pressures. The authors have carried out a study of the extrusion of a number of non-ferrous metals and alloys by liquid under high pressure. The method of such an extrusion process, the rheological effect accompanying the flow of metal through the die and the nature of the change in mechanical properties of the metal extruded by liquid has been described by Beresnev (Refs.9,10). However, it was also necessary to find a means of deforming metal parts to the same extent using various pressures. Extrusion of step-shaped specimens made it possible to solve this problem. The essence of this method is shown in Fig.1. The three specimens have different diameters. The diameter determines the pressure at which metal flows through the dye. Thus it is possible to obtain data of the influence of three different pressures on work-hardening by bringing about three different degrees of deformation. The mechanical properties of aluminium (AD1) as annealed are shown in Table on p 130.

Card 2/4 From the curves of Fig.2 it is possible to calculate the

SOV/126-7-1-18/28

AUTHORS: Beresnev, B.I., Vereshchagin, L.F. and Ryabinin, Yu.N.

TITLE: The Influence of Hydrostatic Pressure on the Change in Mechanical Properties of Aluminium After Strong Plastic Deformation (O vliyanii gidrostaticheskogo davleniya na izmeneniye mekhanicheskikh svoystv alyuminiya posle bol'shikh plasticheskikh deformatsiy)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 1, pp 128-132 (USSR)

ABSTRACT: During plastic deformation a change of the fine structure of metals occurs and new micro-defects of the crystal lattice, as well as those already present, develop. Such development of micro-defects in a definite stage of deformation leads to the formation and propagation of macro-fractures. Under conditions of hydrostatic pressure the formation and development of micro-defects during plastic deformation is not only rendered more difficult, but an intensive self-healing process of the existing defects in the crystal lattice takes place (Ref.1), and these effects have an important bearing on the plastic flow. It has been shown that the plasticity of

Card 1/4

The Extrusion of Metals by a Liquid under High Pressure

for ϕ and S_f as functions of pressure and the effect of the angle of the cone which reduces the diameter from D to d_0 is also investigated. Microhardness measurements on copper extruded by the plunger method and by the liquid pressure method show that the copper produced by the latter method is the more uniform. There are 4 figures, 1 table and 8 Soviet references.

SUBMITTED: April 14, 1958.

Card 2/2

SOV/179-59-1-19/36

AUTHORS: Beresnev, B. I., Vereshchagin, L. F., Ryabinin, Yu. N. (Moscow)

TITLE: The Extrusion of Metals by a Liquid Under High Pressure (O vydavlivanii metallov zhidkost'yu, nakhodyashcheysya pod vysokim davleniyem)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 1, pp 128-131 (USSR)

ABSTRACT: The paper is a continuation of earlier work (Ref.2). Extrusion of a metal by a liquid under high pressure is an improvement over extrusion by a plunger, since much of the friction at the walls of the container is eliminated. Experiments were carried out on aluminium AD-I, copper M-2, duralumin D-1M and alloy AMG. The degree of deformation was measured as

$$\phi = (D^2 - d_o^2) \, 1 \, D^2 \quad ,$$

or as

$$S_f = \ln(D^2/d_o^2) \quad ,$$

where D is the initial diameter of the metal cylinder, and d_o is the diameter of the extruded metal. Curves are given

Card 1/2

BERESNEV, B.I., Cand Tech Sci -- (diss) "Conditions of flow and change of the mechanical properties of metals in their extrusion with a high-pressure liquid." Mos, 1959, 12 pp (Acad Sci USSR. Inst of Physics of High Pressures) 150 copies. Bibliography: pp 11-12 (11titles) (KL, 33-59, 118)

BERESNEV, B.I.; VERESHCHAGIN, L.F.; RYABININ, Yu.N.

Extrusion of pipes and parts of complex profile by liquid under high pressure. Inzh.-fiz.zhur. no.11:105-109 N '58.
(MIRA 12:1)

1. Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR, g. Moskva, i Institut fiziki metallov AN SSSR, g. Sverdlovsk.
(Extrusion (Metals))

Role of the Medium in the Extrusion of Metals by Means of a Liquid under High Pressure

of a tin-lead solder reduces considerably the pressure necessary for extrusion.
3) Optimum conditions of extrusion were determined, by means of which a high surface quality can be obtained, namely, by applying a thin layer of hypoid lubricant on a specimen which is extruded by means of water.
4) It was found that if the wrong liquid is applied this can lead not only to damage of the surface of the extruded metal but also to its complete destruction. There are 1 table, 1 figure and 6 Soviet references.

ASSOCIATION: Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR, Institut fiziki metallov, AN SSSR (Laboratory of Physics of Very High Pressures, Academy of Sciences USSR, Institute of Metal Physics, Academy of Sciences USSR).

SUBMITTED: May 27, 1958.

Role of the Medium in the Extrusion of Metals by Means of a Liquid under High Pressure

Table (continued)

Liquid transmitting pressure	Pressure at which the flow of metal begins P, kg/cm²	Surface quality
Water	5500	Good
Water + a layer of hypoid lubricant applied to the surface of the specimen	5000	Excellent

On the basis of the obtained results, the following conclusions are arrived at:

1) The pressure necessary to produce a flow of the metal as well as the surface quality of the deformed metal are greatly dependent on the fluid used.

2) It was found that plating of the specimen with a thin layer

Role of the Medium in the Extrusion of Metals by Means of a Liquid under High Pressure

the influence of various media, which act both as a medium for transmitting the pressure and as a lubricant on the pressure necessary for producing equal deformations. For this purpose aluminium was extruded through a die with a cone angle $\alpha = 40^{\circ}$. The reduction was maintained constant at 0.773. The method was the same as that described in earlier work (Ref.2). The following results were obtained:

Liquid transmitting pressure	Pressure at which the flow of metal begins P, kg/cm^2	Surface quality
Hypoid lubricant	3750	Bad
Transformer oil	5500	Satis-
Transformer oil + kerosene (0.5+0.5)	6500	factory
Transformer oil + kerosene + oleic acid (0.49+0.49+0.02)	6450	"
Kerosene	6900	"
Gasoline	6900	"
Methylated spirits	6075	"
Ethyl alcohol	6450	"

SOV/24-58-10-28/34

AUTHORS: Beresnev, B. I., Vereshchagin, L. F., Ryabinin, Yu. N. (Moscow)

TITLE: Role of the Medium in the Extrusion of Metals by Means of a Liquid under High Pressure (Rol' sredy pri vydavlivanii metallov zhidkost'yu vysokogo davleniya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 144-146 (USSR)

ABSTRACT: Bridgman carried out experiments on extruding copper and steel with a liquid under pressures of up to 12 000 atm. He stated that he did not succeed in finding an optimum regime for this process and, as a result of that, at very high pressures the metal came out of the die in individual bits instead of continuously. Similar work carried out in the Very High Pressure Physics Laboratory of the Academy of Sciences, USSR, has shown that the correct selection of the medium which transmits the pressure determines to a considerable extent not only the magnitude of the pressure necessary for effecting flow of the metal but also the quality of the metal after deformation. Information gained during these experiments is reported in this paper. The authors studied

Card 1/4

Installation for Drawing and Rolling Metals in Freely Rotating Rolls in a Liquid under High Hydrostatic Pressure.

compressor rated at 3.8 litres/hour at 10,000 kg/cm^2. The conversion from drawing to rolling is simply effected. The more important parts are made of heat-treated alloy steels. The installation has been used for experiments on the pressure drawing and rolling to various degrees of deformation, but the authors do not give their results. There are 2 figures and 6 Soviet references.

1. Metals--Processing 2. Rolling mills--Design 3. Pressure--Metallurgical effects 4. Water--Applications

Card 2/2

BERESNEV, B.I.

SOV/136-58-8-14/27

AUTHORS: Beresnev, B.I., Vereshchagin, L.F. and Ryabinin, Yu.N.

TITLE: Installation for Drawing and Rolling Metals in Freely Rotating Rolls in a Liquid under High Hydrostatic Pressure (Ustanovka dlya volocheniya i prokatki v svobodno vrashchayushchikhsya valkakh metallov v zhidkosti pod vysokim gidrostaticheskim davleniyem).

PERIODICAL: Tsvetnyye Metally, 1958, Nr.8, pp.61-63 (USSR)

ABSTRACT: Bridgeman(ref.1) on the basis of investigations of the effect of pressure on metal properties proposed and carried out preliminary experiments on the rolling and drawing of metals under hydrostatic pressure. Bridgeman (Ref.1) and also the authors, working in the Laboratoriya fiziki sverkhvysokikh davleniy AN SSSR (Laboratory of Super-High Pressure Physics of the AS USSR) (Ref.4), extended the technique and noted the improvement of metal properties. Special installations (Fig.1) have been used to compare the two methods of deformation and served as the basis for an installation produced by the authors for drawing or rolling (idler rolls) metals in hydrostatic pressures up to 10,000 kg/cm^2 (Fig.2). The liquid is supplied by a laboratory

Card 1/2

Certain features of the rheological behaviour of metals pressed through a die by means of a liquid under high pressure (without a plunger). (Cont.) 24-5-5/25

angle for aluminium and copper, whilst Fig.7 shows the dependence of the pressing pressure on P on the magnitude of the entering angle of the die. Graphs, Figs. 8—10 give theoretically calculated values, which are compared with experimental results. Compared to the process of pressing metals through dies by means of a plunger, pressing of dies by applying hydraulic pressure has the following advantages: the total pressing pressure is considerably reduced since there are no losses caused by friction in the cylindrical part of the die; the resulting reduction in the total required pressing force also leads to a reduction of the friction coefficient between the metal and the die; the reduction in the friction coefficient between the metal and the die leads to a considerable reduction of the optimum entering angle as compared to the optimum entering angle in the case of pressing by means of a plunger. There are 10 figures and 9 references, all of which are Slavic.

Card 3/3

SUBMITTED: March 1, 1957.

ASSOCIATION: Laboratory of Super-high Pressure Physics of the Ac.Sc. (Laboratoriya Fiziki Sverkhvysokikh Davleniy AN SSSR)

AVAILABLE:

information on pressing metals by means of liquids under high pressure and to elucidate the influence of such a method of shaping on the mechanical characteristics of the metal and the features of the flow of the metal through the die. This paper deals with the part of the study relating to the rheological behaviour of the materials pressed by means of a liquid. For materialising the process apparatus was built which permits pressing by means of pressures up to 12 000 atm. The upper limit of the pressure is given by the pressure which can be produced by the compressor built in the Laboratory. A photo of the apparatus is shown in Fig.2, p.49, whilst Fig.3 shows the attachment for pressing the material through the die and Fig.4 shows the die geometry. The die was produced from ШХ-15 Steel heat treated to a hardness of 62 Rockwell C. Fig.5 gives curves of the specific pressing pressure, p kg/cm^2 against a deformation for aluminium and for copper using dies with differing entering angles. Fig.6 shows the dependence of the specific pressing pressure on the entering

AUTHORS: Beresnev, B.I., Vereshchagin, L.F., Ryabinin, Yu. N. (Moscow). 24-5-5/25

TITLE: Certain features of the rheological behaviour of metals pressed through a die by means of a liquid under high pressure (without a plunger). (Ob osobennostyakh reologicheskogo novedeniya metallov, pressuyemykh zhidkost'yu).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.5, pp.48-55 (U.S.S.R.)

ABSTRACT: Pressing of metals in the cold state can be effected either by means of a plunger pressing against the work or by means of fluid under high pressure. The first method is at present very widely used but owing to the very high friction forces between the material and the die walls it cannot be applied to metals with high yield points. This obstacle can to a certain extent be eliminated by using the second method, namely, pressing by means of the hydrostatic pressure of a liquid. The here described experiments were carried out by the Laboratory of Super-high Pressure Physics of the Ac.Sc. (Laboratoriya Fiziki Sverkhvysokikh Davleniy AN SSSR) and represent one of the first attempts to obtain

Card 1/3

COUNTRY : USSR
CATEGORY : Cultivated Plants. Fruits. Berries. Nuts. Tea.

ABS. JOUR. : RZhBiol., No. 4, 1959, No. 18300

AUTHOR : Blagnov, A.Ye.

INST. :

TITLE : On Apple Planting in Siberia.

ORIG. PUB. : Sad i ogorod, 1958, No. 4, 75-76

ABSTRACT : No abstract.

CARD: 1/1

LIVSHITS, L.N., inzh.; PETROV, V.P., inzh.; VALGE, I.A., inzh.;
BERESNEV, A.T., inzh.

Manufacture of welded beams of the V92-T aluminum alloy.
Prom. stroi. 40 no.12:23-28 '62. (MIRA 15:12)

1. Chelyabinskiy zavod metallokonstruktsiy imeni Ordzhonikidze
(for Livshits).
(Aluminum alloys) (Beams and girders)

KALACHEV, Yu.A., inzh.; BERESNEV, A.T., inzh.; SERGEYEV, I.I., inzh.

Propane-butane cutting at the Chelyabinsk Pipe Rolling Mill. Svar. proizv. no.3:36-37 Mr '62. (MIRA 15:2)

1. Chelyabinskiy NIPTIAMMASh (for Kalachev, Beresnev). 2. Chelyabinskiy truboprokatnyy zavod (for Sergeyev).
(Gas welding and cutting) (Chelyabinsk--Pipe mills)

KALACHEV, Yu.A., inzh.; BERESNEV, A.T., inzh.; LUNEGOV, D.P.

Propane-oxygen cutting by the K-51 petroleum torch. Svar. proizv. no.7:37-38 Jl '61. (MIRA 14:6)

1. Chelyabinskiy nauchno-issledovatel'skiy institut tekhnologii mashinostroyeniya (for Kalachev, Beresnev). 2. Chelyabinskiy traktornyy zavod (for Lunegov).
(Gas welding and cutting--Equipment and supplies)

KALACHEV, Yu.A.; BERESNEV, A.T.; LUNEGOV, D.P.

Performance of a kerosene cutter using liquefied gas. Gaz. prom. 6 no.7: 23-24 '61. (MIRA 17:2)

Some technological features ...

Jacket. It is pointed out that also the МШШТ-600 (MShShT-600) and МШШИ-400 (MShShI-400) welders can be used for welding the frames and the inner sheet metal jacket. The automatic welding of the circumferential seams is carried out with tungsten electrodes and filler wire on a special installation developed by Engineer Ye.Ya. Belin and others at the plant [Abstracter's note: the plant is not named]. There are two reasons for using the filler wire: the difficulty of assembling the sections with a clearance not exceeding 0,15 mm and the necessity of rolling the seams without filler wire, since they are weakened by the sagging of the reverse of the seam. If welding is carried out when power-supplied from the first stages of the transformer, it is expedient, for increasing the welder capacity, to use electrode holders for twin electrodes. For welding the circumferential seams of the inner jacket and the longitudinal and circumferential seams of the outer jacket, a rigid clamping of the blanks is necessary. There are 5 figures and 1 table.

Card 2/2

12300 2408, 1573

32775
S/135/62/000/001/005/007
A004/A101

AUTHOR: Beresnev, A.S., Engineer

TITLE: Some technological features of the welding of structures from AMr - 6 (AMg6) alloy

PERIODICAL: Svarochnoye proizvodstvo, no. 1, 1962, 24 - 26

TEXT: The author investigates the special features of the argon arc and spot welding of large-size sheet structures from AMg6 aluminum alloy and describes the equipment used for this purpose. The structures consist of an inner and outer jacket of 2 and 1.2 mm sheet metal respectively, reinforced by a framework of 2 mm sheet metal. The whole structure is broken down into technological sections of 2,300 - 2,400 mm length. The frames are welded to the inner sheet metal jacket on the MTIT -600 (MTPT-600) welder. Then the sections are joined to each other by automatic argon arc welding. The inner jacket is argon-arc welded on automatics with tungsten electrodes without filler wire. Burns are prevented by limiting the clearances between the joints: to 0.15 mm for the 2 mm sheets, and to 0.1 mm for the 1.2 mm sheets. The author gives a detailed description of welding the sections, joining the sections and welding the outer

Card 1/2

Causes of the Appearance of Bulgings and Cracks in Containers Made of АМг6 (AMg6) Alloy by Seam Welding

Figure 3:

Fig. 3

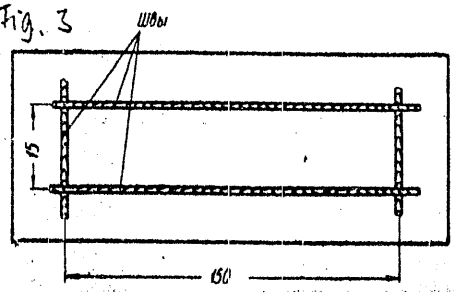


Figure 3
Schematic drawing of a specimen
There are 4 figures and 2 Soviet references.

Card 4/4

S/135/61/000/002/008/012
A006/A001

Causes of the Appearance of Bulgings and Cracks in Containers Made of АМг6 (AMg6) Alloy by Seam Welding

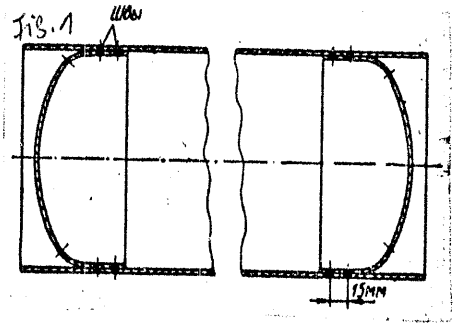
In a two-row seam the distance must be 1 - 3 mm. Shunting of current is not to be expected, since during welding of the second seam on a МШШИ-400-2 (MShShI-400-2) machine it is sufficient to increase the pulse of the welding current by one graduation of the "pulse" potentiometer to obtain the same width of cast zone for both the first and second seams. If a distance between the seams should be over 1 - 3 mm, then the second seam must be non-hermetic.

The aforementioned conditions pertain to any sheet structures made of aluminum-magnesium alloys, having closed regions formed by welding.

Figure 1

Schematic drawing of the container

Figure 1:



Card 3/4

Causes of the Appearance of Bulgings and Cracks in Containers Made of AMr6 (AMg6) Alloy by Seam Welding

accumulated in the region of the seams and exerts a local tensile effect entailing the failure of the container. To confirm the aforementioned concepts the following experiment was carried out. Two "Amg6" and 1AMц (AMts) (Al-Mn) specimens were welded by hermetic seams. Specimen No. 1 was welded with water cooled rolls, the moisture penetrating into the spaces between the seams. Specimen No. 2 was welded in such a manner that moisture between the seams was eliminated; specimen No. 3, was welded with water. The specimens were than placed in a furnace heated to 400°C and held at this temperature for 10 minutes. Bulgings were revealed on specimen No. 1 but not on the other two specimens. This shows that a chemical reaction with hydrogen liberation had taken place in the first case; this reaction did not occur in the two other specimens due to the absence of moisture in the 2nd specimen and magnesium in the third one. The following recommendations are given: When manufacturing AMg6 alloy containers the bottom cannot be welded with two hermetic seams with an inter-space of 15 mm. The bottom should be welded-on by one single seam. Thus the possibility of β-phase separating out is reduced, the grain growth in the weld-adjacent zone is diminished and efficiency is raised.

S/135/61/000/002/008/012
A006/A001

AUTHOR: Beresney, A. S., Engineer

TITLE: Cause of the Appearance of Bulgings and Cracks in Containers Made of AMr6 (AMg6) Alloy by Seam Welding

PERIODICAL: Svarochnoye proizvodstvo, 1961, No. 2, pp. 33-34

TEXT: Bulgings and cracks were revealed in AMg6 alloy containers manufactured by seam welding. The defects appeared between the seams within 2 - 6 months and caused failure of the containers. The bulgings were 3 - 5 mm high and 50 - 100 mm long. Hydrogen gas escaped from the bulgings when holes were drilled. It is shown in Reference 1, 2 that hydrogen may form as a result of a chemical reaction between the so-called β-phase (Al_8Mg_5) and the water, cooling the rolls. During seam welding of the AMg6 alloy the time consumed to heat the alloy until fusion is not sufficient to ensure the transition of the β-phase into a solid solution, which therefore passes into a liquid state, where it is unstable and decomposes with separation of magnesium. Magnesium reacts with the moisture contained on the surface of the parts and with moisture penetrating into the depth of the alloy along the grain boundaries. Magnesium oxidizes and liberates hydrogen which is

Card 1/4

the AL19 alloy is practically insensitive to a reduction in the rate of cooling upon quench. The mechanical properties of the castings in the freshly quenched state, tested at room T, were practically invariable with an increase in water T from 45 to 96°, whereas in aged specimens tensile strength and relative elongation were somewhat reduced thereby. The mechanical properties at 250°C (short-term tests) were practically invariable with an increase in quench-water T up to 96° and were also independent of the type of heat treatment; (2) the total corrosional stability of the AL19 alloy quenched in water is practically the same with quench-water T of 45 and 96°, both in the freshly quenched state and after artificially accelerated aging; (3) the quenching of odd-shaped large castings in boiling water produces so insignificant a warping of the castings, that virtually no straightening is required after heat treatment. The adoption of quenching in boiling water for large odd-shaped castings has provided a cardinal solution of the problem of warpage, has reduced the amount of labor required, and has increased the quality of parts made of AL19 alloy; (4) quenching in boiling water does not require any additional major equipment and does not alter in any way the procedural schedule of the production line. Quenching in boiling water can be done with the utilization of ordinary vats and requires only a simple addition of equipment in which the water is heated by means of live steam. There are 2 figures, 4 tables, and 1 Russian-language Soviet reference.

S/724/61/000/000/004/020

AUTHORS: Loktionova, N. A., Rastvorova, N. M., Bereslavtseva, O. P., Larikova, M. I., Stroganov, G. B.

TITLE: A New heat-treatment procedure for the AL19 alloy to maintain dimensional stability of castings.

SOURCE: Liteynyye alyuminiyevyye splavy; svoystva, tekhnologiya plavki, lit'ya i termicheskoy obrabotki. Sbornik statey. Ed. by I. N. Fridlyander and M. B. Al'tman. Moscow, Oborongiz, 1961, 36-42.

TEXT: The paper describes the laboratory development and industrial testing of a new heat-treatment procedure for AL19 parts of complex configuration. The procedure maintains a good stability of the geometric dimensions of the part throughout the course of the heat treatment. The laboratory investigation consisted essentially of the quenching of AL19 castings in water at differing temperatures (T). The cast specimens had a variable-section annular shape. They were quenched in a horizontal attitude. Artificial (accelerated) aging was performed. The specimens were placed into a furnace at 300°C, whereupon the T was raised to 535±5°. After 9-hour soaking, the T was raised to 545±5°, with additional 7-hr holding. After quenching in water at varying T up to 96°, some of the specimens were aged at 175° for 3 hrs. It was found that: (1) For cross-sectional thicknesses up to 75x60 mm,

Card 1/2

Elimination of Chlorine From Zinc Sulfate Solutions by Basic Bismuth Sulfate

75387
SOV/149-2-5-13/32

theoretically required; i.e., 9 part is bismuth to 1 part chlorine. After the reaction, the electrolyte will contain about 250 to 350 mg/liter dissolved bismuth. The latter can be eliminated by neutralizing the solution with zinc oxide to a pH level of 4.5 to 5 and by a subsequent filtration. A presence of 10 mg/liter of bismuth in the electrolyte can be tolerated although it contaminates the cathode zinc with bismuth. The regeneration of the basic sulfate from bismuth chloride is done with sulfuric acid under heating. The regeneration is complete. There are 4 tables.

ASSOCIATION: North Caucasian Mining Metallurgical Institute. Chair of General Metallurgy (Severokavkazskiy gornometallurgicheskiy institut. Kafedra obshchey metallurgii)

SUBMITTED: March 11, 1959

Card 2/2

18.3100

75387
SOV/149-2-5-13/32

AUTHORS: Pogorelyy, A. D., Bereslavtseva, L. F.

TITLE: Elimination of Chlorine From Zinc Sulfate Solutions by Basic Bismuth Sulfate

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1959, Vol 2, Nr 5, pp 88-93 (USSR)

ABSTRACT: One of the principal difficulties of refining zinc dusts by electrolysis is an accumulation of chlorine in the bath and the corrosion of electrodes. Among insoluble compounds which would entrain the chlorine from the bath into the precipitate, bismuth chloride presents the greatest advantages as compared to silver, copper, mercury, or antimony chlorides. Electrolytes contaminated by chlorine are treated with basic bismuth sulfate under constant agitation for 3 hours, followed by filtration. The reaction must be carried out in an acid medium, the acidity being kept at a level between 0.3 to 1.9 pH. In order to achieve a Cl concentration not exceeding 20 to 30 mg/liter, bismuth must be added in quantities 50% in excess of the

Card 1/2

BERESLAVTSEVA, L.E.; TOROPOVA, T.G.

Solubility of indium hydroxide. Izv. vys. ucheb. zav.; tsvet. met. 2 no.2:97-100 '59. (MIRA 12:7)

1. Severokavkazskiy gornometallurgicheskiy institut, Kafedra obshchey, fizicheskoy i analiticheskoy khimii.
(Indium--Metallurgy) (Leaching)

POGORELYY, A.D.; BEREZLAVTSEVA, L.F.

High purity refining by separation of indium from lead and lead from bismuth. Biul. TSIIN tsvet. met. no. 5:28-31 '58. (MIRA 11:7)
(Lead--Metallurgy)
(Indium)
(Bismuth)

On the Problem of Removal of Cu From an Ni Electrolyte

within one hour. 3) Owing to the presence of a crystalline precipitate of $CaSO_4$, the filtration proceeds entirely satisfactorily. 4) In the case of a solution containing Cu in an amount equivalent to a concentration of 1 g/liter, the precipitation amounts to 8-9 g/liter if a CaS with an activity of 68.2% is used. The precipitate contains 11-18% Cu and 5-6% Ni.

N. P.

SOV/137-59-1-500

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 64 (USSR)

AUTHORS: Bereslavtseva, L. F., Toropova, T. G.

TITLE: On the Problem of Removal of Cu From an Ni Electrolyte (K voprosu ob ochistke nikelevogo elektrolita ot medi)

PERIODICAL: Tr. Sev.-Kavkazsk. gornometallurg. in-ta, 1957, Nr 15, pp 307-310

ABSTRACT: The possibility of employing CaS for purposes of removing Cu from an Ni electrolyte was investigated. The advantages offered by this method include rapid and complete precipitation of Cu, as well as the absence of any accumulation of extraneous ions in the solution, owing to the fact that all products of the reaction are precipitated out. The experiments were conducted with a solution of industrial type, the Cu concentration of which amounted to 1 g/liter. The following conclusions were reached: 1) The purification of an Ni solution from the Cu contained in it is complete when the CaS consumption amounts to 100%; this exceeds the theoretically required amount in accordance with the reaction between Cu and CaS. 2) The reaction occurs at a temperature of 40°C and the precipitation is complete

Card 1/2

Making Secondary Cadmium From Worn-out Batteries (cont.)

for shop tests.

L. P.

Card 2/2

SOV/137-58-12-24363

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 60 (USSR)

AUTHORS: Pogorelyy, A. D., Bereslavtseva, L. F.

TITLE: Making Secondary Cadmium From Worn-out Batteries (Polucheniye vtorichnogo kadmiya iz iznoshennykh akkumulyatorov)

PERIODICAL: Tr. Sev.-Kavkazsk. gorno-metallurg. in-ta, 1957, Nr 15, pp 232-237

ABSTRACT: A description is presented of laboratory experiments in vacuum-distillation extraction of Cd from unexpanded plates of Cd batteries. That portion of the Cd which is present in the form of metal (Me) distills off readily at 700°C, but the reduction of the oxidized Cd by the iron of the containers requires heating to 900°. At 900° and a residual pressure of 2-5 mm Hg, distillation goes at a satisfactory rate, with complete extraction of the Cd in the form of compact high-purity Me in the sublimate. A test of the process in the presence of a reductant showed that reduction and distillation are accelerated thereby, but this process requires continuous evacuation which may lead to losses of Cd which condenses as a fine dust under these conditions. Distillation without addition of reductant is recommended

Card 1/2

BERESLAVSKIY, Ya.M.; NIKOL'SKIY, V.V.

Dressing gravel and crushed stone in heavy media. Transp. stroi. 13 no.5:33-36 My '63. (MIRA 16:7)

1. Glavnyy geolog Glavstroyproma (for Bereslavskiy). 2. Glavnyy tekhnolog Dmitrovskogo zavoda MZhBK (for Nikol'skiy).
(Sand and gravel plants)
(Stone, Crushed)

BODRIKOV, I.M., ed.; GOLOVANOV, A.L., redaktor; BEGICHEV, V.G., inzhener; BERESLAVSKIY, Ya.M., inzhener; ZAK, G.I., inzhener; SOLOGUB, A.D., inzhener; TANTSMAN, R.I., inzhener; TIKHONOVA, L.V., inzhener.

[Progressive technology in the building materials industry of the Ministry of Railroad Transportation] Peredovaia tekhnologiia v promyshlennosti stroitel'nykh materialov MPS. Moskva, Gos. transp. zhel-dor. izd-vo, 1952. 62 p. (MLRA 6:5)

(Building materials)

BERESLAVSKIY, S.M.

AUTHOR: Bereslavskiy, S.M. SOV-115-58-4-13/45

TITLE: An Instrument for Checking "Try-Squares" (Pribor dlya kontrolya ugol'nikov)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 4, pp 25-26 (USSR)

ABSTRACT: This indicating instrument gives a numerical expression of the angular error in a try-square in microns and does away with the need for standard squares for comparison. It consists of two cast-iron bridges bolted together with the micron indicator fixed to a sliding measuring assembly. This assembly moves on a column installed in a bracket at right angles to the top surface of the bridge. The square to be checked is placed on the bridge surface and the measuring tip adjusted to touch its vertical member. The indicator is zeroed, the square reversed and a new reading taken. The difference between the readings indicates the degree of deviation of the square from the perpendicular. There is 1 photo and 1 diagram.

1. Measurement--Instrumentation

Card 1/1

BERESLAVSKIY, S.M.

Instrument for checking worm screws and milling cutters and gauge for checking small-module spur gear wheels. Izm.tekh. no.5:69-72 S-O '56. (MLRA 10:2)

(Measuring instruments) (Gauges)

BERESLAVSKIY, S.M.

Improving the KZF instument. Izm.tekh. no.4:71-72 Jl-Ag '56.
(MLRA 9:11)

(Engineering instruments)

ACC NR: AP6035732 (A,N) SOURCE CODE: UR/0413/66/000/019/0095/0095

INVENTOR: Bereslavksiy, S. I.; Torchenkova, V. A.

ORG: none

TITLE: Method of predicting failures and detecting malfunctioning elements of various equipment. Class 42, No. 186737

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 95

TOPIC TAGS: paint, heat change of state, electronic equipment , circuit failure

ABSTRACT: An Author Certificate has been issued for a method of prediciting failures and detecting mulfunctioning elements in various equipment (e.g., electronic). The method is based on the differentiated control of the heat levels of various elements of equipment according to the change in the light falling on the surface of these elements, which consists of a heat-indicating paint. To improve the visual indication of change in the color of the light-indicating paint during the operation of the controlled elements, on portions of the surfaces of elements, mixed with portions covered with heat-indicating paint, is applied a heat-resistant paint, the color of which corresponds to the color of the heat-indicating piant at a temperature below critical.

SUB CODE: 09, 11/ SUBM DATE: 26Aug64/

Card 1/1 UDC: 536.522.3

BERESLAVSKIY, S.

GINKEN, S. (Moskva); AKIMOV, N. (Moskva); BERESLAVSKIY, S. (Moskva); BULANOVICH, P. (Moskva); MAL'KIN, S. (Moskva); MARTYNOV, A. (Moskva); CHISTYAKOV, R. (Moskva).

Let's mark the occasion of the 40th anniversary of the Great October with new successes in mass defense work; appeal of members of the All-Union Volunteer Society for Assistance to the Army, Air Force, and Navy of the Ordzhonikidze Factory in Moscow to all primary organizations. Voen.znan. 32 no.11:4 N '56. (MIRA 10:10)

1. Predsedatel' komiteta pervichnoy organizatsii Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu (for Ginken). 2. Chlen komiteta pervichnoy organizatsii Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu (for Akimov, Bereslavskiy, Bulanovich, Mal'kin, Martynov). 3. Sekretar' komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi (for Chistyakov). (Military education)

BERESLAVSKIY, N.I.

Our experience in studying consumer demand. Sov.torg. no.8:16-20 Ag '57. (MLRA 10:8)

1. Glavnyy tovarovod Lentorga.
(Leningrad--Retail trade)

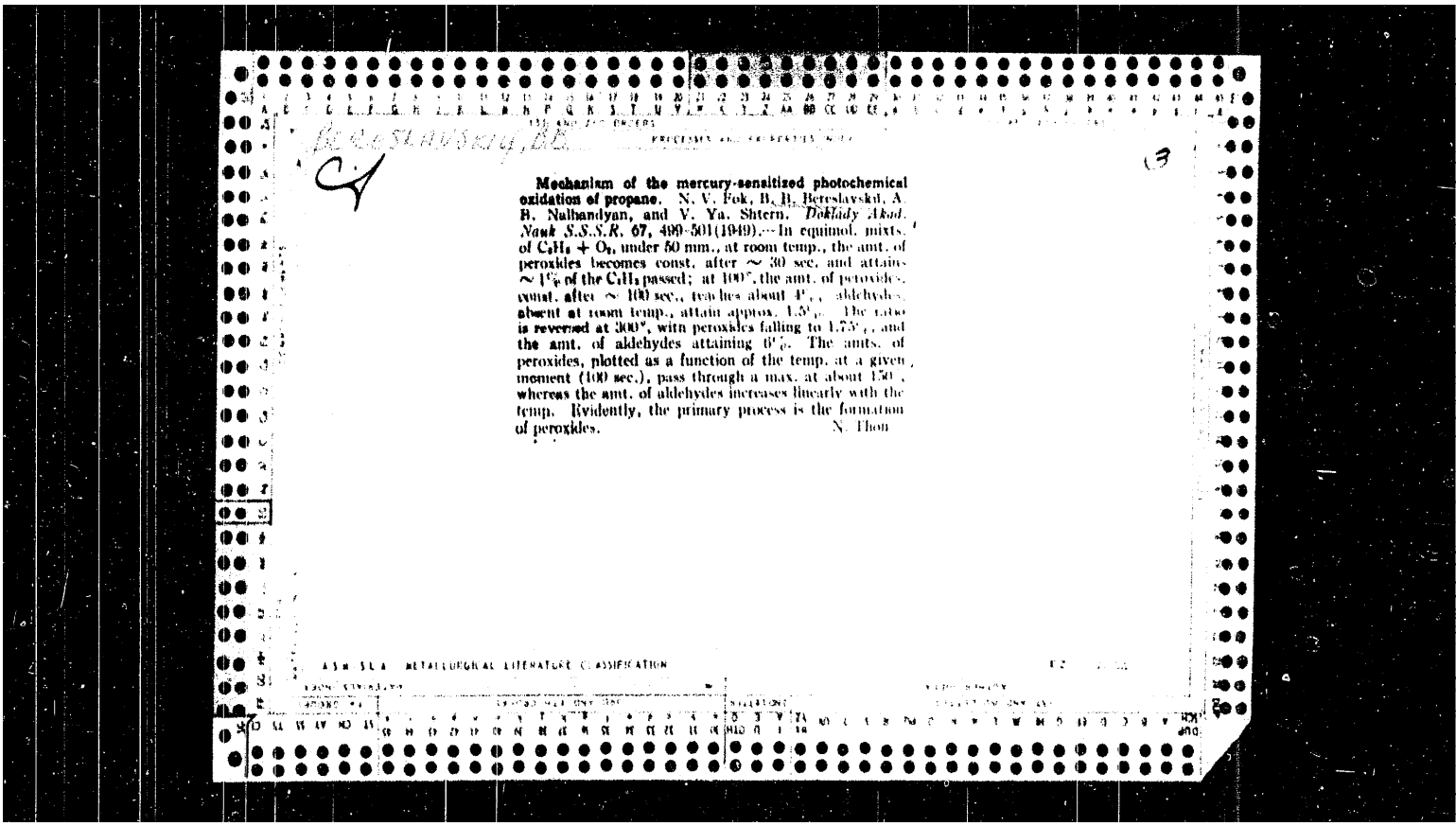
BEKAREVICH, A.N. (Gomel');BERESLAVSKIY, M.D. (Uzhgorod);GROMOV, A.P. (Melekess); DUBINCHUK, Ye.S.;TESLENKO, I.F.(Kiyev);ZOLOTOVITSKIY, Ye.N. (Reutovo); KAZHDAN, B.I. (Leningrad);KLIMENCHENKO, D.V. (Berdyansk);MEL'NIKOV, K.S. (Sterlitamak);MIKHAYLOV, K.F. (Magnitogorsk);NASYROV, A.Z. (Sterlitamak);NEFEDOV, D.I. (Moskva);NOVOSELOV, S.I. (Moskva);PRAVILOV, B.R. (s.Kanino Ryazanskoy obl.);PRINTSEV, N.A.(Kursk);SEMENOVICH, A.F. (Sverdlovsk)

Discussion of the plans for the programs. Mat. v shkole no.6:5-28 N-D '59. (MIRA 13:3)

(Mathematics--Study and teaching)

BERESLAVSKIY, L.D.; TSYGANKO, L.Z.; EDEL'GAUZ, G.Ye.

Evaluating the level of industrial mechanization in foundries.
Lit.proizv. no.7:8-10 Jl '61. (MIRA 14:7)
(Foundries--Equipment and supplies)



Mechanism of the mercury-sensitized photochemical oxidation of propane. N. V. Fok, B. B. Bereslavskii, A. B. Nalbandyan, and V. Ya. Shtern. *Doklady Akad. Nauk S.S.S.R.* 67, 499–501(1949).—In equimol. mixts. of $C_3H_8 + O_2$, under 50 mm., at room temp., the amt. of peroxides becomes const. after ~ 30 sec. and attains ~ 1% of the C_3H_8 passed; at 100°, the amt. of peroxides, const. after ~ 100 sec., reaches about 4%; aldehydes, absent at room temp., attain approx. 1.5%. The ratio is reversed at 300°, with peroxides falling to 1.75%, and the amt. of aldehydes attaining 6%. The amts. of peroxides, plotted as a function of the temp. at a given moment (100 sec.), pass through a max. at about 150°, whereas the amt. of aldehydes increases linearly with the temp. Evidently, the primary process is the formation of peroxides. N. Thon

1. BERESLAVSKIY, A. V. EPSHTEIN, I. YA.

2. USSR (600)

4. Grinding and Polishing

7. Experience with the introduction of diamondless dressing on tooth-grinding and groovegrinding machines. Stan. i instr. N '52.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

DYNIN, V., inzh.; BERESLAVSKIY, A., inzh.

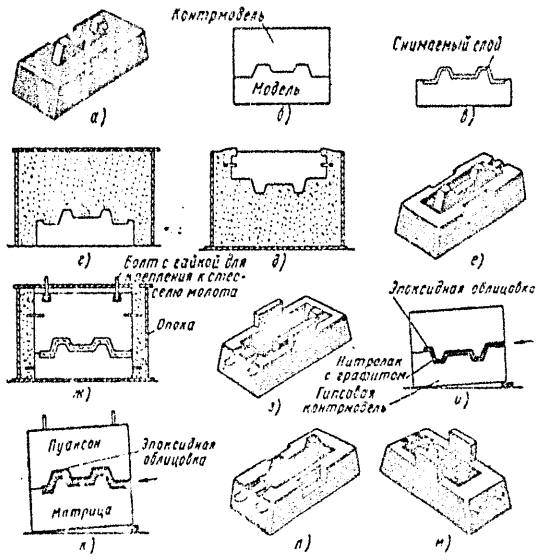
Houses build of large keramzit-concrete blocks and panels.
Zhil.stroi. no.8:7-10 '60. (MIRA 13:7)
(Kuybyshev--Concrete slabs)
(Apartment houses)

remain unchanged. The output of stamped components made by dies lined with epoxy plastic is considerably higher than that of lead-zinc dies. Thus 500 parts of complex configuration made of C-20 (S-20) grade steel 600 x 900 mm were stamped with a top die lined with epoxy resin, without the die showing any signs of wear. A great advantage of dies lined with epoxy resin is the fact that they are easily reconditioned with the same cast-composition in case of wear or damage. Besides, they are 2 - 4 times cheaper than lead-zinc dies. There are 5 figures.

Epoxy Resins Replacing Lead and Zinc

top die.
The mechanical working of the lined counterdie and top die consists only in deburring the epoxy plastic layer and eliminating the epoxy mass from the flat parts of the die. The stamping technology of parts with drop hammers with the aid of dies lined with epoxy plastics remains in principle the same as the stamping of parts with lead-zinc dies, while dies lined with epoxy plastics have a longer life than lead-zinc ones. On account of the elastic properties of the epoxy-resin lining the formation of crimps is considerably reduced. Because of these elastic properties the lining is not deformed and, consequently, its dimensions

Figure 3:



Epoxy Resins Replacing Lead and Zinc

18 - 22 parts by weight of vat residue of hexamethylenediamine. The dosing of the plasticizer depends on the operational mode of the equipment. For the top die lining the plasticizer content should be somewhat higher than for the counterdie lining. The author then describes the preparation of the cast-composition, which can be prepared in small quantities of up to 10 - 15 kg by hand in a vat. As a parting agent, producing a parting film between the model being copied and the epoxy mass, the author recommends silicon-organic compositions (polyisobutylene, polystyrol etc.). Good results are obtained with the silicon-organic rubber grades 14P-2 (14R-2) or 5P-129 (5R-129), dissolved in gasoline. The rubber-to gasoline ratio should be 1 : 10 - 1 : 15. Figure 3 shows the technology of manufacturing dies with epoxy-resin lining.

Figure 3.
a - making the gypsum model; δ (b) - casting the gypsum counter-model; в (v) - finish working of the gypsum model; г (g) - molding of the gypsum model; д (d) - pouring of the mold of the counterdie body; е - finished die body; ж (zh) - molding of the counterdie body and pouring of the top-die body; з (z) - top-die body; и (i) pouring of the epoxy mass and lining of the counterdie body according to the counter-model; k - pouring of the epoxy mass and lining of the top-die body according to the finished counterdie; л and м (l and m) - finished counterdie and

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S/117/60/000/012/004/022
A004/A001

AUTHOR: Bereslavskaya, D. M.

TITLE: Epoxy Resins Replacing Lead and Zinc

PERIODICAL: Mashinostroitel', 1960, No. 12, pp. 18 - 20

TEXT: The author describes the use of epoxy resins in the cast-copying of models or templet parts made of easily-to-work materials (gypsum, wood, etc.). The cast-copying method makes it possible to obtain die parts (top die and counterdie) as a mirror image of the model whose dimensions and configuration are fully preserved. The main components of cast compositions are liquid epoxy resin, used as binder; dibutylphthalate as plasticizer; polyethylene-polyamine or hexamethylene-diamine, or the vat residue of hexamethylene-diamine as solidification agent, and various powdery and fibrous fillers. Gypsum, quartz sand, iron sand, iron minium, diabase flour, cement, marshalite, etc. are used as powdery fillers. Asbestos is used as fibrous filler. The fillers do not only make the composition cheaper but give it a definite strength. The ratio of resin to solidifying agent, depending on the kind of solidifying agent, is the following: on 100 parts by weight of resin 10 parts by weight of polyethylene-polyamine or hexamethylene-diamine, or

Card 1/4

BERESLAVICH, T.N.

Case of strongyloidiasis in Rostov Province based on data of the clinic of the Rostov Institute of Parasitology. Med. paraz. i paraz. bol. 32 no.4:488-489 Jl-Ag '63. (MIRA 17:8)

1. Iz Rostovskogo nauchno-issledovatel'skogo instituta meditsinskoy parazitologii Ministerstva zdravookhraneniya RSFSR (dir. - prof. S.N. Pokrovskiy).

BERESLAVICH, T.N.

Treatment of trichocephaliasis. Med.paraz.i paraz.bol. 37 no.5: 618 S-O '59. (MIRA 13:4)

1. Iz Rostovskogo-na-Donu respublikanskogo nauchno-issledovatel'skogo instituta malyarii i meditsinskoy parazitologii Ministerstva zdravookhraneniya RSFSR (direktor instituta - prof. S.N. Pokrovskiy).
(NEMATODA)

Bereslavich, T.N.

BERESLAVICH, T.N.; LISHENKO, M.S. (Rostov-na-Donu)

Results of using quinacrine in the treatment of trichocephaliasis and taeniasis. Klin.med. 35 [i.e.34] no.1 Supplement:35-36 Ja '57.
(MIRA 11:2)

1. Iz Nauchno-issledovatel'skogo instituta malyarii i meditsinskoy parazitologii Ministerstva zdravookhraneniya RSFSR v Rostove-na-Donu (dir. - dotsent S.N.Pokrovskiy)
(QUINACRINE) (TAPEWORMS) (NEMATODA)

Beresiavich T.N.

BUDAGOVA, G.G.; BERESLAVICH, T.N.

Form of intestinal and pulmonary strongyloidiasis. Sov.med. 21 Supplement:29 '57. (MLRA 11:2)

1. Iz Instituta malyarii i meditsinskoy parazitologii Ministerstva zdravookhraneniya RSFSR.
(NEMATODA) (LUNGS--DISEASES)
(INTESTINES--DISEASES)

BUDAGOVA, G.G.; BERESLAVICH, T.N.; POPOVA, P.S.

Work experience of the day hospital for the treatment of helminthiasis. Med.paraz.i paraz.bol. no.6:551-553 N-D '53. (MLRA 6:12)

1. Iz Instituta malyarii i meditsinskoy parazitologii Ministerstva zdravookhraneniya RSFSR (direktor instituta S.N.Pokrovskiy).
(Worms, Intestinal and parasitic)

BUDAGOVA, G.G.; BERESLAVICH, T.N.; POPOVA, P.S.

Role of helminths and of intestinal protozoa in bacillary dysentery. Med. paraz.i paraz.bol. no.4:351-353 Jl-Ag '53. (MLRA 6:9)
(Dysentery) (Worms, Intestinal and parasitic)

ZINCHENKOV, N.P. (Krivoy Rog); SIDORENKO, A.F. (Krivoy Rog); SHPAKOVSKIY, Yu.P. (Krivoy Rog); PHILIPENKO, N.P. (Krivoy Rog); ANDREYEVA, G.I. (Krivoy Rog)

The K-100 light drill rig operated by remote control. Gor. zhur. no.8:35 Ag '65. (MIRA 18:9)

TKACHENKO, Fedor Andreyevich, inzh.-gornyak; BERESLAVETS, Filipp Gavrilovich, inzh.-gornyak; SOLOMASHENKO, Yuriy Aleksandrovich, inzh.-gornyak; BYKHOVETS, Georgiy Filippovich, inzh.-gornyak; USPENSKAYA, N., red.; GLUSHKO, G., tekhn.red.

[Mechanization and automation in Krivoy Rog Basin mines] Mekhanizatsiia i avtomatizatsiia shakht Krivbassa. Dnepropetrovsk, Dnepropetrovskoe knizhnoe izd-vo, 1963. 60 p. (MIRA 16:12)

1. Rabotniki Pridneprovskogo sovnarkhoza i Krivorozhskogo nauchno-issledovatel'skogo gornorudnogo instituta (for all except Uspenskaya, Glushko).

(Krivoy Rog Basin--Mining machinery) (Automation)

BERESLAVETS, F.G., inzh.; ZINENKO, A.G., inzh.; KUNIN, I.K., inzh.; GRIBANOV, I.P., inzh.; PRILIPENKO, Ye.D., inzh.

Iron ore haulage out of the stope by vibrating conveyers. Met. i gornourd. prom. no.3:83-85 My-Je '62. (MIRA 15:9)
(Conveying machinery)

BERESLAVETS, F.G., kand.tekhn.nauk; CHUB, V.F., gorn.inzh.

Results of comparative testing of rock drills. Gor. zhur. no.8:55-62 Ag '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy gornorazvedochnyy institut, Krivoy Rog.
(Rock drills—Testing)

BERESLAVETS, F.G.

Name: BERESLAVETS, F. G.

Dissertation: Investigation of certain problems in sinking mine shafts with the use of large-capacity grab buckets under Krivbas conditions

Degree: Cand Tech Sci

Defended at ~~Affiliation:~~ Min Higher Education USSR, Dnepropetrovsk Order of Labor Red Banner Mining Inst imeni Artem

Publication ~~Defense~~ Date, Place: 1956, Dnepropetrovsk

Source: Knizhnaya Letopis', No 47, 1956

PHASE I BOOK EXPLOITATION SOV/5084

International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958.

Doklady sovetskikh uchenykh. [t.4] Khimiya radioelementov i radiatsionnykh prevrashcheniy (Reports of Soviet Scientists. v. 4.: Chemistry of Radioelements and Radiation Transformations) Moscow, Atomizdat, 1959. 323 p. 8,000 copies printed. (Series: Its: Trudy)

Ed. (Title page): A. P. Vinogradov, Academician; Ed.: V. I. Labarnov; Tech. Ed.: Ye. L. Mazel'.

PURPOSE: This collection of articles is intended for scientists and engineers interested in the applications of radioactive materials in science and industry.

COVERAGE: The book contains 26 separate studies concerning various aspects of the chemistry of certain radioactive elements and the processes of radiation effect on matter. These reports discuss present-day methods of reprocessing irradiated nuclear fuel, research in the chemistry of mercury, thorium, uranium, plutonium, and americium, problems related to the sorption and burying of radioactive wastes, the radiolysis of aqueous solutions and of organic compounds, the mechanism of polymer chain grafting, and the effect of radiation on natural and synthetic rubbers. V. N. Prusakov edited the present volume. Most of the reports are accompanied by references. Contributors to individual investigations are mentioned in annotations to the Table of Contents.

TABLE OF CONTENTS

[illegible] L. V. Lipis, L. V. Fomin, and N. T.

(31)

BERESKOV, G.K., doktor khimicheskikh nauk; RITTER, L.I., kandidat tekhnicheskikh nauk; SEREBRENNIKOVA, M.T., nauchnyy sotrudnik

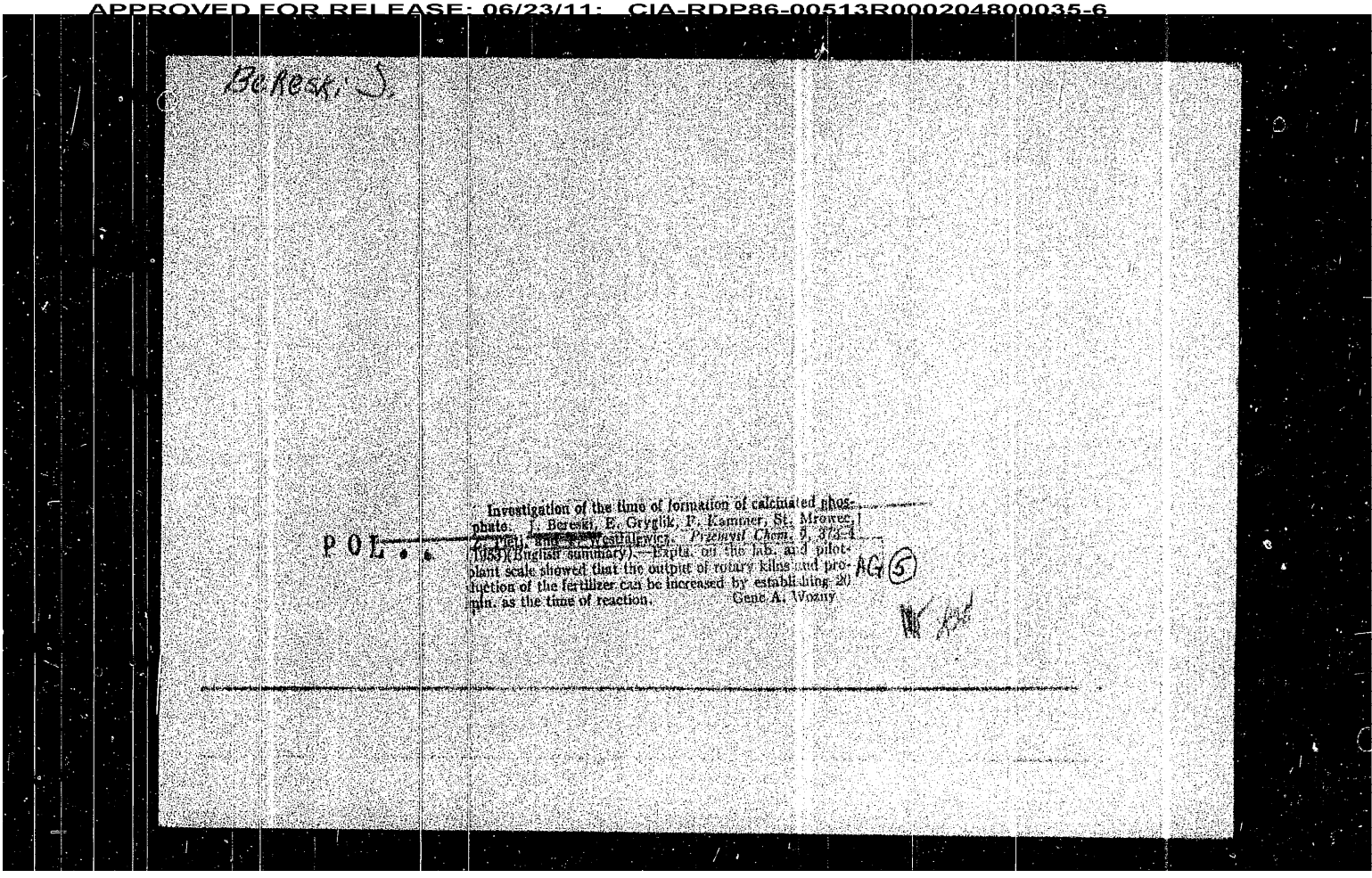
Oxygen contact process for the manufactue of sulfuric anhydride (sulfur trioxide) Khim.prom.no.1:8-12 Ja'47. (MLRA 8:12)

1. Nauchnyy institut po udobreniyam i insektofungisidam
(Sulfur trioxide)

AKERMAN, Karol; HOFFMANN, Przemysław; POCZYNAŁŁO, Andrzej; OGLAZA, Jan; GRYGLIK, Eugeniusz; PLETTI, Zdzisław; BERESKI, Jerzy

Marking-out of material streams in rotary kilns for super-Thomas production in the BONARKA Works in Krakow. Przem chem 40 no.7:380-383 Jl '61.

1. Instytut Badan Jadrowych, Polska Akademia Nauk, Warszawa i Fabryka Supertomasyny BONARKA, Krakow.

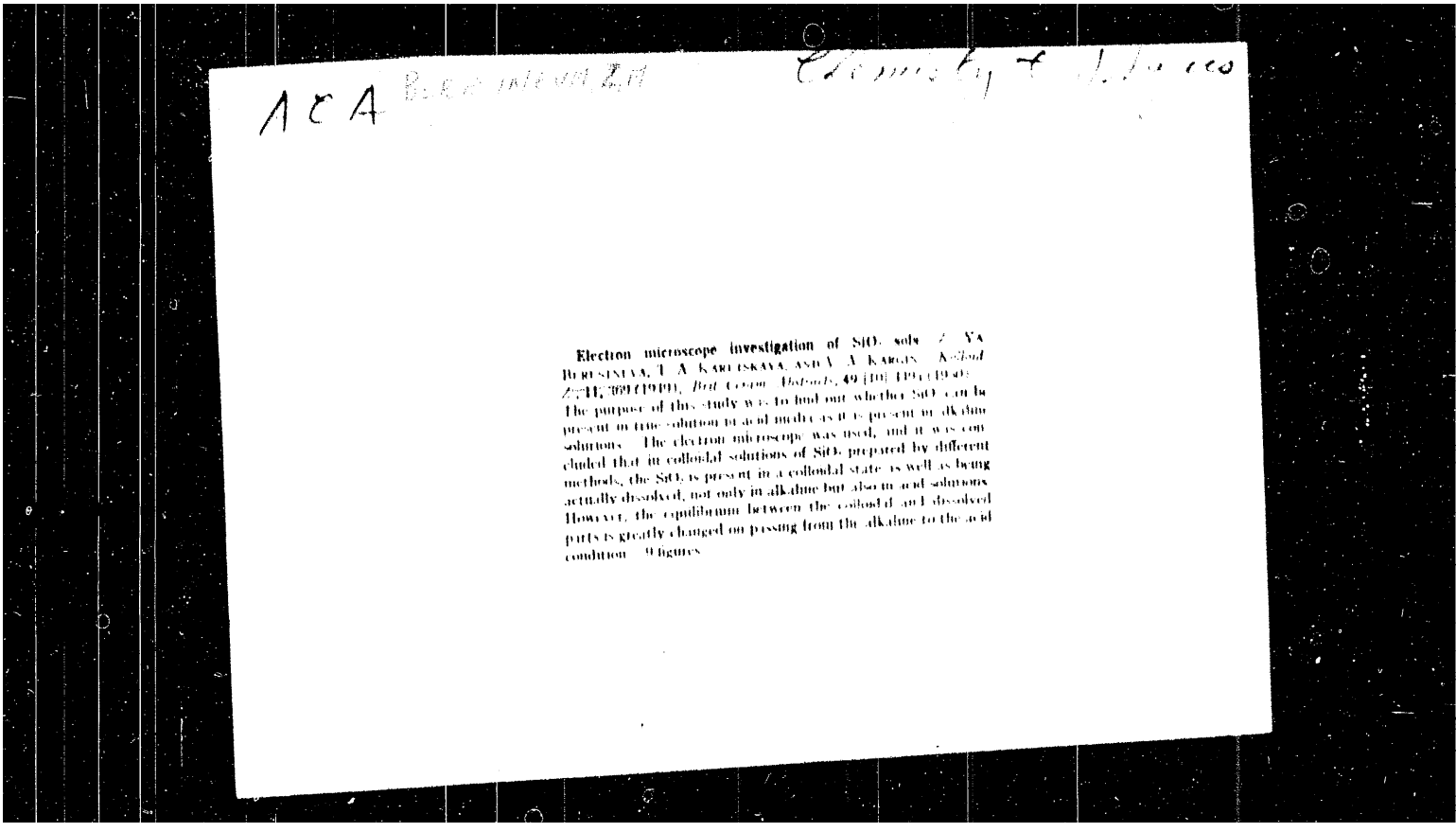


Berezki, J.

POL.

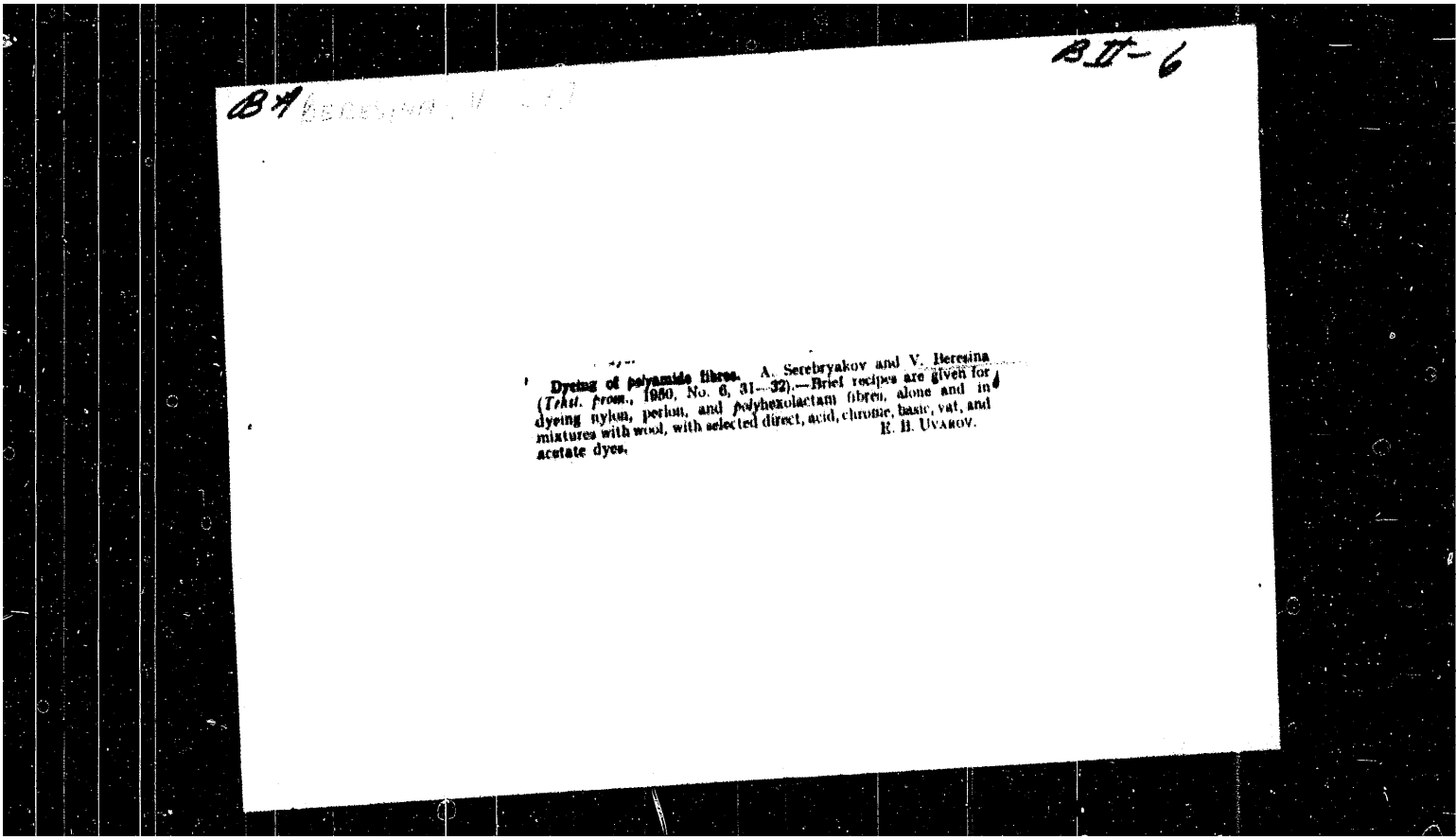
Investigation of the time of formation of calcinated phosphate. J. Bereski, E. Gryglik, F. Kammer, St. Mrowec, [illegible] and A. Westfalewicz. *Przemysl Chem.* 9, 373–4 (1953)(English summary).—Expts. on the lab. and pilot-plant scale showed that the output of rotary kilns and production of the fertilizer can be increased by establishing 20 min. as the time of reaction. Gene A. Vozny

AG (5)



ACA

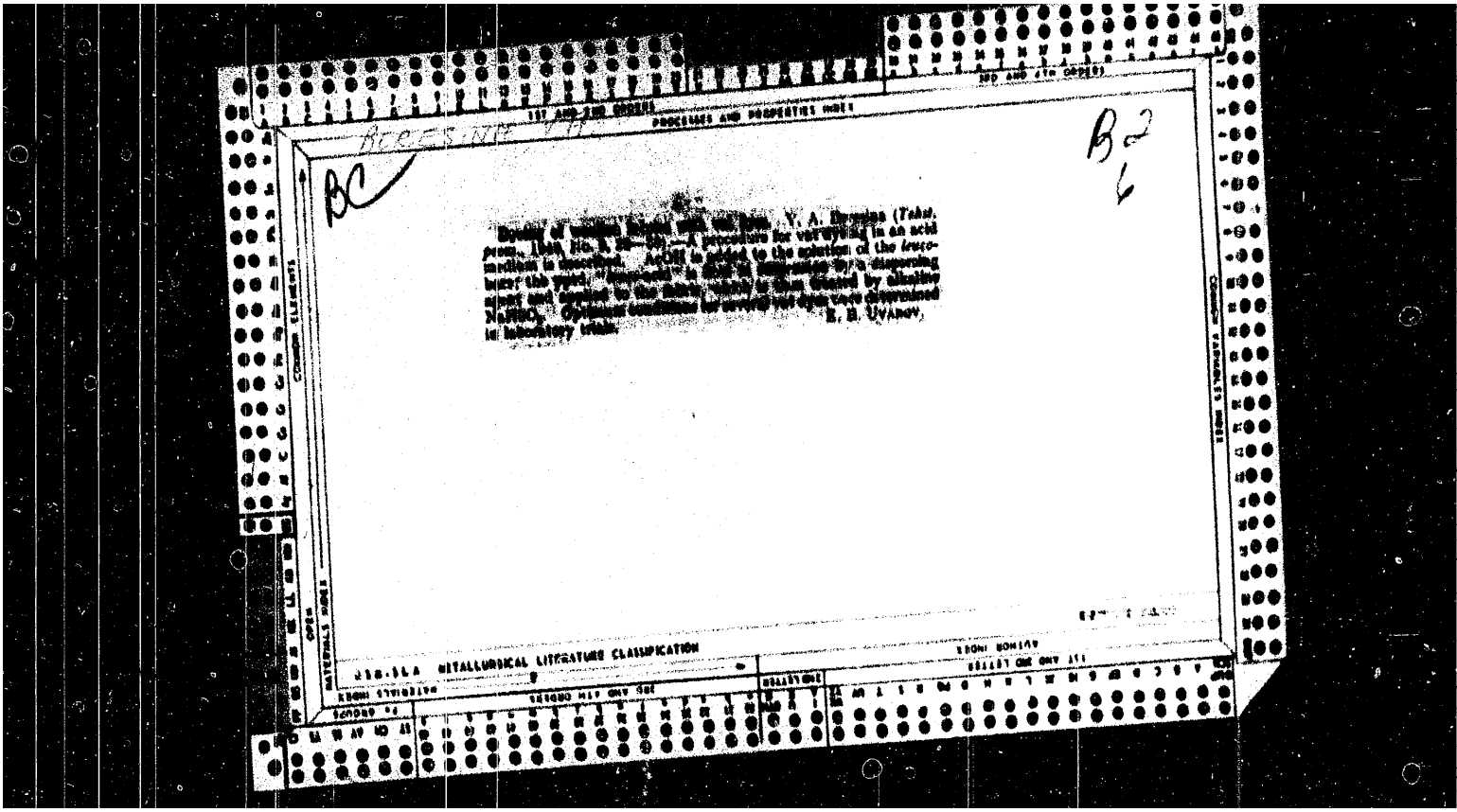
Electron microscope investigation of SiO_2 sols. Z. YA. BURESHEVA, T. A. KARGINSKAYA, AND V. A. KARGIN. *Kolloid Zh.*, 11, 389 (1949). *Bull. Comm. Defenses*, 49 [10] 1291 (1949). The purpose of this study was to find out whether SiO_2 can be present in true solution in acid media as it is present in alkaline solutions. The electron microscope was used, and it was concluded that in colloidal solutions of SiO_2 prepared by different methods, the SiO_2 is present in a colloidal state as well as being actually dissolved, not only in alkaline but also in acid solutions. However, the equilibrium between the colloidal and dissolved parts is greatly changed on passing from the alkaline to the acid condition. 9 figures.



BT-6

BT Serebryakov, A. - [illegible]

Dyeing of polyamide fibres. A. Serebryakov and V. Berezina (*Tekst. prom.*, 1950, No. 6, 31—32).—Brief recipes are given for dyeing nylon, perlon, and polyhexolactam fibres, alone and in mixtures with wool, with selected direct, acid, chrome, basic, vat, and acetate dyes. R. B. Uvarov.



APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204800035-6

80572

SOV/169-59-7-7183

The Determination of the Turbulence Ratio by the Method of Artificial Ionization (Point Source)

When applying a point ion source, the correlation coefficient between K_u and K_B was on the average equal to 0.4, and between K_u and K_L to 0.5. When applying a linear ion source, the correlation was higher. The regression equations of each of the coefficients K_u, K_B, and K_L on the stratification parameter t/u_1^2, are presented, as well as on the D.L. Laykhtman-parameter . Moreover, the results of determining the ion-disappearance constant by the formula:

$$\beta = \frac{u \ln \frac{N_1 x_1}{N_2 x_2}}{(x_2 - x_1) \ln e}$$

are expounded, where N_i is the ion concentration at distance x_i from the point source (for the linear source an analogous formula is presented.) The β-values were correlated with K_L and u, but the correlation proved to be poor.

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A.S. Monin

80572

3.9000 SOV/169-59-7-7183

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 7, p 104 (USSR)

AUTHOR: Beresina, I.I.

TITLE: The Determination of the Turbulence Ratio by the Method of Artificial Ionization (Point Source)

PERIODICAL: Uch. zap. Kirovskiy gos. ped. in-t, 1958, Nr 15, pp 3 - 11

ABSTRACT: The results of determination of the turbulence ratio K_u from the measurements of the unipolar air conductivity near the ionizator (X-ray diagnostic apparatus) are expounded. The ionizator was mounted at an altitude of 1 m from the earth surface (the radiation was directed toward the earth), and the conductivity was measured at the source level in two points in the direction of the wind and at an altitude of 2 m above the one of these points. The coefficient K_u was computed by the formulae proposed by V.V. Milin (Uch. zap. KGPI, 1953, Nr 7, Kirov). Simultaneously the values of turbulence ratio K_B were computed by the M.I. Budyko - method and of K_L by the D.L. Laykhtman - method from the data of the gradient measurements.

Card 1/2

BERESINA, E.K.

USSR / Microbiology. Antibiosis and [illegible] Antibiotics.

Abs Jour : Ref Zhur - Biologiya, [illegible]

Author : [illegible]

Inst : Not given

Title : [illegible] in USSR

Orig Pub : Antibiotiki, 1957, 2, [illegible]

Abstract : Out of 20 strains [illegible] Fres. [illegible] this, the strain [illegible] liquid of this [illegible] the culture liquid of [illegible]

Card 1/3

strain (Antibiot. [illegible] 54) and does not contain [illegible] bacterial [illegible] fumagillin, [illegible] extract and [illegible] is separated by [illegible] subsequent [illegible] crystallization [illegible] A crystalline preparation [illegible] yellow color is produced [illegible] ness of 8000 phage units in 1 [illegible] paration is active in weakly acid [illegible] media and loses its effectiveness in [illegible] alkaline medium. The preparation, administered orally, is slightly toxic. A single

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administration of fumagillin to mice at a dose of 1 g/kg and multiple administration to rats and rabbits in the course of 10 days at a 24-hour dose of 50 mg/kg showed no effect on the animals' behavior, did not bring about changes in the blood pressure and in the internal organs of the animals. Fumagillin has medicinal value in amoebic dysentery in rats, and also in bee nosema disease. -- T. P. Vertogradova

Card 3/3

BERESIN, F.A

SUBJECT USSR/MATHEMATICS/Topology CARD 1/1 PG - 991
AUTHOR BEREZIN F.A., GELFAND I.M.
TITLE Some remarks to the theory of spherical functions on symmetric Riemannian manifolds.
PERIODICAL Uspechi mat.Nauk 11, 3, 211-218 (1956)
reviewed 7/1957

To a symmetric Riemannian manifold $\mathfrak{G}/\mathfrak{G}_0$ with the group $\mathfrak{G}$ the authors consider spherical functions; if $g \to Tg$ is a unitary representation such that for a certain $\xi_0 \neq 0$ holds $(Tg)\,\xi_0 = \xi_0$ for all $g \in \mathfrak{G}_0$, then the functions $(\xi, (Tg)n)$ are called spherical functions; they are called zonal if they are constant on the "spheres" with the "center" x_0. Especially for the manifolds of the semi-simple groups ($\mathfrak{G}$ consists of the $x \to a^{-1} x\, b$) and for the cases "$\mathfrak{G}$ = complex semi-simple group, $\mathfrak{G}_0$ = maximal compact group" the law of multiplication of the zonal functions is given. Further the Laplace-operators (i.e. exchangeable with the $f(x) \to f(gx)$, $g \in \mathfrak{G}$) are brought in relation with the establishment of mean values, and finally a duality between the ring of the class functions of the compact group $\mathfrak{G}$ and the algebra of the representations of $\mathfrak{G}$ is explained. No proofs are given.

BERESIN, A. B., and STEPANOV, Yu. M.

"To Produce Aluminum of Very High Purity by the Sonic Smelting Method" a paper read at the International Metallurgists' Conference, Moscow 26-30 June 56

SO: CS-3,302,240, 11 Jan 57.

BERESHVILI, G.A.

Short-delay blasting in drifting in Georgian coal mines.
Vzryv. delo no.51/8:361-380 '63. (MIRA 16:6)

1. Institut gornogo dela AN Gruzinskoy SSR.
(Georgia—Coal mines and mining) (Blasting)

BERESHNOY, I. M.; KAPTSINEL, M. A. and NESTERENKO, Ga. A.

Subtropicheskie Kultury (Subtropical Cultures), 576 p., Moscow, 1951.